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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/670,443	09/25/2003	Manish Vaishya	2002P18118US01	5522

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EXAMINER

FAULK, DEVONA E

ART UNIT	PAPER NUMBER
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2644

DATE MAILED: 07/14/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/670,443

Applicant(s)

VAISHYA, MANISH

Examiner

Devona E. Faulk

Art Unit

2644

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 20 April 2005.
2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
4a) Of the above claim(s) _____ is/are withdrawn from consideration.
5) ☐ Claim(s) _____ is/are allowed.
6) ☒ Claim(s) 1-20 is/are rejected.
7) ☐ Claim(s) _____ is/are objected to.
8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Response to Arguments

1. Applicant's arguments filed 4/20/2005, with respect to the rejection(s) of claim(s) 1,2,7,8,13,18 and 19 under 102(a) and claims 3-6,9-12,15-17 and,20 under 103 (a), in view of the amended language to those claims, have been fully considered and are persuasive. Therefore, the rejection has been withdrawn. However, upon further consideration, a new ground(s) of rejection is made in view of Tanaka et al. necessitated by the amended language.

Claim Rejections - 35 USC § 112

2. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claim 20 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Claim 20 recites "providing first look-up tables based on a determination of a first sound pressure during a run up of said engine, wherein said first sound pressure is based on each order of sound generated by said engine" and "providing a second look-up table based on a determination of a second sound pressure, wherein said second sound pressure is computed for each of a plurality of operating conditions of said engine". The specification teaches on a first and second sound pressure and computing a net control based on the first and second sound pressures (page 11, lines 7-17) and teaches of look-up tables for temperature effects on

control signal amplitude (Figure 2; page 4, lines 8-9). The specification does not describe providing first loop up tables and second look up tables as claimed.

Claim Rejections - 35 USC § 102

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

4. **Claims 1,2,6-8,13,17-19** are rejected under 35 U.S.C. 102(b) as being anticipated by Tanaka et al. (U.S. Patent 5,692,052).

Claims 1 and 13 share common elements.

Regarding **claims 1 and 13**, Tanaka discloses a method for controlling induction sound of an internal combustion engine, comprising

Regarding **claims 1 and 13**, Tanaka discloses a method for controlling induct induction sound of an internal combustion engine (Figures 1,2, and 14), comprising:

determining a first sound pressure during a run up of said engine, wherein said first sound pressure is based on each order of sound generated by said engine

(abstract; column 8, lines 38-61);

operating said engine under a plurality of operating conditions (Figures 1,16);

determining a second sound pressure for each of said operating conditions (column 8, lines 38-61);
obtaining current vehicle operating conditions (column 8, lines 38-61);
decomposing said first and second sound pressures and said frequency response into engine orders (column 8, lines 38-61); and
generating a net control signal based on each of said first and second sound pressures and said vehicle-operating conditions to control said sound wherein each individual order is controlled independently (column 8, lines 50-54).
and wherein said signal is not modified to thus form an open loop system (Figures 1,2 and 14).

Regarding **claim 2**, Tanaka discloses wherein a signal is also based on a frequency response of a microphone (11, Figure 14) and a speaker (15) used in computing said first and second sound pressures (column 8, lines 35-40).

Regarding claims 6 and 17 Tanaka further teaches of a signal including a correction term (KQ) (column 5, line 56-column 6, line 2) and further teaches of correcting based on an operation condition (column 6, lines 15-20; column 7, lines 47-53) .

All elements of **claims 7 and 18** are comprehended by the rejection of claims 1 and 13 respectively (Figures 1,2,14,16).

Regarding **claims 8 and 19**, Tanaka further discloses that the net control signal is amplified prior to driving a speaker (54, Figure 16).

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. **Claims 3 and 14** are rejected under 35 U.S.C. 103(a) as being unpatentable over Tanaka et al. (U.S. Patent 5,692,052) in view of Arshad et al. (US 2002/0084887).

Claims 3 and 14 claim the method according to claims 1 and 13 respectively, wherein said vehicle operating conditions are obtained by a transceiver from a vehicle databus. Tanaka discloses an engine noise control device for a vehicle. A vehicle inherently has an automotive bus. Tanaka teaches of a controller (2, Figure 1; reads on transceiver) including a CPU (9) that receives (column 4, lines 6-8) vehicle-operating conditions but fails to disclose wherein the vehicle operating conditions are obtained by a transceiver from a vehicle data bus. Arshad discloses a transponder communication and control system for a vehicle including a controller (38) that transmits (paragraph 0052) and receives (paragraph 0050) operating conditions from a CAN bus. Thus it would have been obvious to one of ordinary skill in the art at the time of the invention in order to modify Tanaka such that the transceiver receives vehicle operating conditions from a vehicle databus as taught by Arshad in order to have the ability to selectively transmit control signals.

7. **Claims 4,5,15 and 16** are rejected under 35 U.S.C. 103(a) as being unpatentable over Tanaka et al. (U.S. Patent 5,692,052) in view of Todter et al. (U.S. Patent 5,937,070).

Claims 4 and 15 claim method of claim 1 and the method of claim 13 respectively, wherein said signal includes a gain factor for attenuating sound. Tanaka meets all elements of claims 1 and 13 and further teaches of amplitude control but fails to specifically teach that the signal includes a gain factor for attenuating sound. Todter discloses the concept of a signal including a gain factor for attenuating sound (column 12, lines 26-30). Thus it would have been obvious to one of ordinary skill in the art to use Todter's concept of a signal including a gain factor for attenuating sound for the benefit of maintaining a positive phase margin.

Claims 5 and 16 claim the method of claim 1 and the method of claim 13 respectively, wherein said signal includes applying a gain factor for enhancing said sound. Tanaka meets all elements of claims 1 and 13 and further teaches of amplitude control but fails to specifically teach that the signal includes a gain factor for attenuating sound. Todter discloses the concept of applying a gain factor for enhancing sound (column 12, lines 26-30). Thus it would have been obvious to one of ordinary skill in the art to use Todter's concept of a signal including a gain factor for attenuating sound for the benefit of maintaining a positive phase margin.

8. **Claim 12** is rejected under 35 U.S.C. 103(a) as being unpatentable over Tanaka et al. (U.S. Patent 5,692,052) in view of Kinoshite et al. (U.S. Patent 5,245,664).

Claim 12 claims the method of claim 1 further including a time delay between said engine operating conditions. Tanaka meets all elements of claim 1 and teaches of a delay (column 11, line 36) but fails to teach specifically of a time delay between operating conditions. Kinoshite discloses the concept of including a time delay between said engine operating conditions (column 6, lines 15-25). Thus it would have been obvious to one of ordinary skill in the art at the time of the invention to use Kinoshite's concept of including a time delay as claimed in order to account for any differences in signal propagation times.

9. **Claim 11** is rejected under 35 U.S.C. 103(a) as being unpatentable over Tanaka et al. (U.S. Patent 5,692,052) in view of Pfaff (EP 0 479 367) in further view of Kuo (U.S. Patent 5,940,519).

Claim 11 claims the method of claim 1, wherein said controller utilizes an algorithm that uses a Nyquist criterion. Tanaka meets all elements of claim 1 but fails to disclose using an algorithm. Pfaff teaches of a method and apparatus for attenuating engine-generated noise using algorithms (page 3, lines 50-51; page 7, lines 13-19), but fails to specify using a Nyquist criterion. Kuo discloses an active noise control system that utilizes an algorithm that uses a Nyquist criterion (column 10, line 61- column 11, line 18). The Nyquist frequency and theorem are well known in the art. It would have been obvious to one of ordinary skill in the art at the time of the invention to use Kuo's concept of using a Nyquist criterion in order to prevent aliasing.

10. **Claims 9 and 20** are rejected under 35 U.S.C. 103(a) as being unpatentable over Tanaka et al. (U.S. Patent 5,692,052).

Claim 9 claims the method of claim 1, wherein said decomposing said first and second sound pressures and said frequency response into engine orders include generation of look-up tables. Tanaka meets all elements of claim 1 and further teaches of a graph of sound pressures versus frequency response of engine orders (Figure 9) and versus throttle aperture (Figure 10) and other data represented in table form. Although Figures 9 and 10 are represented in graphical form, it is obvious that it can be represented in a table format like other data (Figures 3,8,12 and 13) and the data is present to provide a second look-up table as claimed. It would have been obvious to one of ordinary skill to provide a first and second look-up table as taught by Tanaka in order to have representative data of sound pressure at various operation conditions.

Regarding **claim 20**, Tanaka discloses a method for controlling induction sound of an internal combustion engine (Figures 1,2,14-16) comprising:

providing first look-up tables (Figures 3,8,9,10,12,13) based on a determination of a first sound pressure during a run up of said engine, wherein said first sound pressure is based on each order of sound generated by said engine (column 8, lines 34-37; Figure 3); and

obtaining current vehicle conditions (column 8, lines 46-54); and

generating a net control signal based on said first and second sound pressures, wherein each individual order is controlled independently (column 8, lines 50-54) and

wherein said signal is not modified to thus from an open loop system (Figures 1,14,16).

Tanaka teaches of a graph of sound pressures versus frequency response of engine orders (Figure 9) and throttle aperture in (Figure 10). Tanaka fails to teach specifically of providing a second look-up table based on a determination of a second sound pressure, wherein said second sound pressure is computed for each of a plurality of operating conditions of said engine. Although Figures 9 and 10 are represented in graphical form, it is obvious that it can be represented in a table format like other data (Figures 3, 8, 12 and 13) and the data is present to provide a second look-up table as claimed. It would have been obvious to one of ordinary skill to provide a first and second look-up table as taught by Tanaka in order to have provide data of sound pressure at various operation conditions.

11. **Claim 10** is rejected under 35 U.S.C. 103(a) as being unpatentable over Tanaka et al. (U.S. Patent 5,692,052) in view of Lampert et al. (U.S. Patent 6,237,575).

Claim 10 claims the method of claims the method of claim 9 further including a microcontroller for storing said look-up tables. Tanaka meets all elements of claim 9 but fail to disclose a microcontroller as claimed. Tanaka teaches of stored tables (column 6, lines 63-66) but fails to disclose a microcontroller for storing said look-up tables. Lampert discloses the concept of a microcontroller storing look-up tables (column 13, lines 22-25) in an automotive environment. Thus it would have been obvious to one of ordinary skill in the art at the time of the invention to have a microcontroller store look-up tables as taught by Lampert for the benefit of not having to reproduce the data once it is obtained.

Conclusion

12. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.


Any inquiry concerning this communication or earlier communications from the examiner should be directed to Devona E. Faulk whose telephone number is 571-272-7515. The examiner can normally be reached on 8 am - 5 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Vivian Chin can be reached on 571-272-7848. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306. On July 15, 2005 the central fax number will change to 571-273-8300.

Art Unit: 2644

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

DEF



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